

**THE EXCEPTIONAL ABUNDANCE OF THE LARGE WHITE BUTTERFLY *PIERIS BRASSICAE* (L.) (LEP.: PIERIDAE) IN BRITAIN IN 1992: RELEVANT REPORTS FROM GERMANY AND THE NETHERLANDS**

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THE ARTICLE in this journal by Howard Mendel (1995) concerning the exceptional abundance in Britain in 1992 of the Large White *Pieris brassicae* (L.) and his comments on Dr Ernest Pollard's 1994 paper in *The Entomologist* prompts me to draw attention to the Dutch annual report on migrant Lepidoptera for the year 1992 (de Vos & Rutten, 1995) and to the reports published in the German journal *Atalanta* (Eitschberger & Steiniger, 1994; Kistner, 1994) of movements of *brassicae* in the Baltic Sea and southern North Sea area in 1992, including a report in the latter of one at Bradwell-on-Sea, Essex, not mentioned by Pollard (1994) or Mendel (1995).

Kistner (*op. cit.*) describes a southerly movement across the estuary of the River Elbe in north Germany which he observed at Duhnen, near Cuxhaven, Lower Saxony, on 30 June 1992. The movement began at 10.45 hours and he estimated that it lasted for 15 minutes; 20 butterflies a minute flying past him during that period within a field of view of ten metres. On an estimated total front of about 80 metres that gave a total count of some 2,400 individuals. They flew at a height of about half a metre above the sea and the coastal sand-flats, and did not allow themselves to be deflected from their course by the many human walkers on the sand-flats. There were no stragglers and he was unable to detect any other species among the *brassicae*. He did not collect any voucher specimens.

On subsequent days Kistner found Large Whites to be present everywhere in the neighbouring gardens and parks. All were in good to very good condition, but reluctant to fly. The ratio of males to females was about 2:1. He considered that the fine condition of the butterflies suggested that the flight originated from the opposite side of the estuary around Friedrichskoog, about 18km to the north-east (he included a map of the area), rather than from St. Peter Ording on the northernmost shore of the estuary, which would otherwise have corresponded with the southerly direction of the movement. The butterflies flew in a very weak north-westerly breeze under a bright blue sky; the day, like the previous one, being very hot with an air temperature of 24°C.

At Hallig Gröde on the small island of Gröde-Appelland, just off Ockholm, near Bredstadt, on the north-west coast of Schleswig-Holstein, K. Fleeth saw migrating *brassicae* throughout 6 July 1992 flying from west to east into a Force 5 north-east wind. He was unable to estimate their numbers. Also in north-west Germany, H.J. von Loh reported that on 8 June 1992,

during a two-hour watch, he counted 39 *brassicae* (22 males, 17 females) migrating together with 35 Red Admirals *Vanessa atalanta* L. to the east-south-east along the lee-side of the new Leysiel sea-wall, five kilometres south-west of Greetsiel, which is to the north-west of Emden on the East Friesland coast.

Much farther east in Germany, on the Baltic Sea coast around Warnemünde and Rostock, Rudnick (1994) observed movements of *brassicae*, *P. rapae* and other insect species from 30 June to 12 July 1992. Following the arrival from the north, possibly from the Danish island of Falster, of swarms of Pierids, mostly *brassicae*, flying into a light easterly to south-easterly wind, easterly coastal movements on a broad front of *brassicae* and *rapae* were regularly seen during this period. All the Pierids were considered to be of the second generation. Rudnick also heard from H. Hoppe (*in litt.*) that large Pierid movements also occurred during this time farther west along the Baltic coast at Klützig, near Travemünde.

In the Netherlands, a westward movement of *brassicae* was reported in ever-growing numbers from the land of Terschelling in the Dutch West Friesian Islands on several dates from 20 May to 28 July 1992 (de Vos & Rutten, 1995). From a sighting of one flying west on 20 May the numbers grew to 265 on 31 May. Then, on two later dates, massive movements were reported: a swarm on 30 June, estimated at more than 10,000, was seen to fly west past Post 16 along the North Sea beach; on 28 July a second swarm of many thousands flew over the Boschplaat on the island. A Landrover-type vehicle which drove through the swarm with open doors was found after a short time to contain more than 200 butterflies!

Migrating *brassicae* were also observed flying along the Hondsbossche Zeewering, near Petten, on the coast of the province of Noord Holland, on several dates from 2 to 11 July, and on 22 August 1992. However, numbers were very small (de Vos & Rutten, 1995).

From the English side of the North Sea, Eitschberger & Steiniger (*op. cit.*) drew attention to a report by Crome (1992) of a huge westerly movement of Large Whites against the wind at Bradwell-on-Sea, Essex, on 18 July 1992, the same date on which Mrs E.M. Parsons saw huge numbers on the saltings adjoining Hamford Water, Little Oakley, in north Essex, and J.P. Bowdrey witnessed hundreds coming in off the sea at Dunwich, Suffolk (Mendel, 1995).

The events recorded in Germany do not on the face of it seem to bear any direct relationship to those on the Dutch and English coasts except for some overlap in dates; being, on the whole, somewhat earlier, and consisting of easterly or southerly movements in contrast to the predominantly westerly flight directions observed in the Netherlands and eastern England (see Table 1). Judging, however, from the reports from near Cuxhaven and from the Warnemünde-Rostock area of *brassicae* arriving from the north, presumably from Denmark (observations from that country and southern Sweden would

be welcome!), it is possible that these easterly movements were a temporary response to a big build-up in numbers through June into early July. Meanwhile, it seems likely that a large part of the population building up near the German North Sea coast at the end of June moved west into the Dutch West Friesian Islands, and that eventually, from the middle of July, many of them headed off westwards or south-westwards in large swarms from here, and also perhaps from as far south as the mouth of the Rhine, across the North Sea to the East Anglian and Kent coasts of England. Swarms flying west for Terschelling, for instance, could have accounted for the movement of unusual numbers of Large Whites reported as far north on the English east coast as Humberside (Pollard, 1994). There are, of course, tantalising gaps in the available data – it is probable that movements occurred on other dates and in other places where there were no entomologically-minded observers present to notice and record them. On balance, I believe that the swarms seen on the east coasts of England in July came direct from the Dutch North Sea coasts rather than, as suggested by Mendel (1995), from France.

All reports indicate that *brassicae* became very abundant in northern and north-eastern Germany in the summer of 1992, as it had been the previous year, in direct contrast to the south of the country, where it was scarce, particularly in the south-east. In the Hamburg area of north-west Germany it was reported to be too numerous to count, and remained numerous until at least mid-September. Such high numbers seem to have been the result of mass emergences of the second brood from the end of June to early August in response to the prevailing high temperatures.

Thus, the additional information available from Germany and the Netherlands given above does, I believe, strongly support Mendel's contention that migratory movements of *Pieris brassicae* did in fact cross the North Sea to England from the Continental mainland in July 1992, and that the large movements seen in England that summer cannot be explained almost entirely in terms of emergence within that country rather than immigration from abroad, as suggested by Pollard. However, in correspondence with me since the publication of his paper (*op. cit.*), Dr Pollard remarked that he is "open-minded about the extent of migration in *P. brassicae*".

At this juncture, I feel I must emphasise that British lepidopterists interested in the migration and dispersal of butterflies and moths should be aware of and consult the annual reports on migrant Lepidoptera published in Germany (*Atalanta* – not confined to Germany) and the Netherlands (*Entomologische Berichten Amsterdam*).

Finally, I find myself unable to agree wholeheartedly with Mr Mendel's remarks in his paper about the attitudes of professional entomologists to the rôle played by the host of amateurs in advancing our science. It is true that there are a minority of professionals who do tend to be somewhat arrogant in

their approach to the work of amateur naturalists, but I would not include Dr Pollard among them. Like Drs Jeremy Thomas, Paul Waring and Martin Warren, and many others one could name, he has done much to foster co-operation with amateurs, and not only through the Butterfly Monitoring

Location	Date	Numbers	Direction of		Source
			flight	wind	
Terschelling, Netherlands	20-30 May	small	W	?	de Vos & Rutten
Near Emden, Germany	8 June	small	ESE	?	Eitschberger & Steiniger
Near Cuxhaven, Germany	30 June	large	S	NW	Kistner
Warnemünde, Germany	30 June - 12 July	large	S & E	E-SE	Rudnick
Nr. Travemünde, Germany	30 June - 12 July	large	E	E-SE	Rudnick
Terschelling, Netherlands	30 June	10,000+	W	?	de Vos & Rutten
Petten, Netherlands	2-11 July	small	W	?	de Vos & Rutten
Schleswig-Holstein, Germany	6 July	large	E	NE	Eitschberger & Steiniger
Felixstowe, England	6 July - 14 Aug.	small-large	N & NW	?	Pollard
Near Felixstowe	July	large	NW?	?	Mendel
Hamburg, Germany	10 July - 3 Aug.	large	?	?	Eitschberger & Steiniger
14km SE of Harwich, England	14 July	v. large	W	SW	Mendel
Sandwich Bay, England	15-25 July	many thousands	WSW	?	Mendel
Bradwell-on-Sea, England	18 July	v. large	?	?	Crome
Hamford Water, England	18 July	v. large	?	?	Mendel
Dunwich, England	18 July	v. large	W	E	Mendel
Terschelling, Netherlands	28 July	many thousands	W	?	de Vos & Rutten

**Table 1.** Movements of *Pieris brassicae* (L.) in the Baltic and North Sea regions in 1992 arranged approximately chronologically.

Scheme. There is, of course, much to be achieved in harnessing the expertise of amateurs to projects led by professionals, such as ecological surveys, mapping schemes, and the study of insect migration and dispersal, in the same way that the British Trust of Ornithology has so effectively co-ordinated the activities and work of Britain's numerous knowledgeable amateur ornithologists.

### Summary

Particulars are given of movements of the Large White Butterfly *Pieris brassicae* (L.) in the summer of 1992 reported in Germany and the Netherlands, and published in journals there; and these are discussed in relation to the apparent immigrations in the same period reported from the English side of the North Sea. It is suggested that on the evidence of the Continental data and that provided by Mendel (1995), that at least the bulk of the large numbers of *brassicae* seen on the eastern coasts of England did in fact come across the North Sea from the Continental mainland.

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### Flying power of *Atlantoraphidia maculicollis* Stephens (Raphidioptera: Raphidiidae)

A specimen of the snake-fly, *Atlantoraphidia maculicollis*, flew to m.v. light here on 14 July 1996. I am grateful to Stephen Brooks of the Natural History Museum for identifying the insect and for commenting that the species is widespread in the United Kingdom and associated with pine-woods. After selective felling in this village we are left with no pines and the nearest pine-woods are about four miles away. It would, therefore, seem likely that the snake-fly had flown a considerable distance, a view possibly supported by the arrival here on the same night of several heath and pine moths. Whereas distance presents no problem to moths, which are regular dispersers, I do